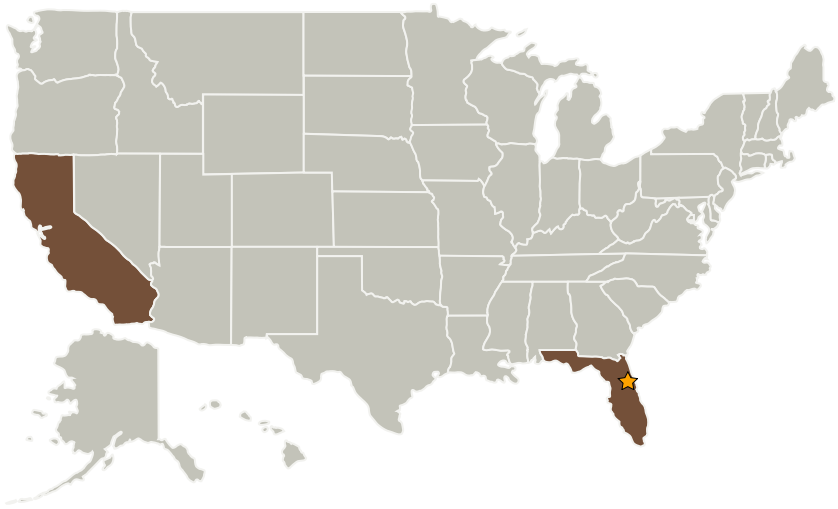
Tracking Launch Vehicles in Interference and Jamming, Phase II

Completed Technology Project (2009 - 2012)

Project Introduction

During the Phase I program, MARK Resources very successfully demonstrated the feasibility of using several distributed small and simple FRPAs that do not need to be precisely arranged, to suppress wideband interference and/or jamming and to provide sufficiently accurate and timely position and velocity measurements from the C/A code for launch vehicle range safety, antenna pointing, and attitude determination. The new technology, demonstrated via software simulation, is compatible with existing launch-capable GPS antennas and receiver hardware, and requires the addition of cabling and a common processor (and can accommodate channel mismatch in the receivers or added hardware). The processing load for jammer suppression is small, less than that for GPS signal tracking. The Phase I program employed signal simulation at the intermediate frequency (IF) of the receivers, after digitization. During Phase II, we propose to develop a demonstration unit consisting of launch-compatible antenna and receiver hardware plus processing software; and to measure its performance using a high-fidelity RF simulation.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
MARK Resources, Inc.	Supporting Organization	Industry	Torrance, California

Primary U.S. Work Locations	
California	Florida

Project Transitions

December 2009: Project Start

March 2012: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.4 Attitude Estimation Technologies
    - TX17.4.3 Attitude Estimation Sensors